

【Sequence Listing】

<110> Lifenza Co., Ltd.
 5 <120> PROTEIN WITH ACTIVITY OF HYDROLYZING AMYLOPECTIN, STARCH,
 GLYCOGEN AND AMYLOSE, GENE ENCODING THE SAME, CELL EXPRESSING THE
 SAME, AND PRODUCTION METHOD THEREOF
 <150> KR2004-0006186
 10 <151> 2004-01-30
 <160> 4
 <170> KopatentIn 1.71
 15 <210> 1
 <211> 647
 <212> PRT
 <213> Artificial Sequence
 20 <220>
 <223> E. coli BL21(DE3)pLysS
 25 <400> 1
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 1 5 10 15
 Ser Pro Ile Val Val Ala Arg Tyr Ile Leu Arg Arg Asp Cys Thr Thr
 30 20 25 30
 Val Thr Val Leu Ser Ser Pro Glu Ser Val Thr Ser Ser Asn His Val
 35 40 45
 35 Glu Leu Ala Ser His Glu Met Cys Asp Ser Thr Leu Ser Ala Ser Leu
 50 55 60

Tyr Ile Tyr Asn Asp Asp Tyr Asp Lys Ile Val Thr Leu Tyr Tyr Leu
 65 70 75 80
 Thr Ser Ser Gly Thr Thr Gly Ser Val Thr Ala Ser Tyr Ser Ser Ser
 5 85 90 95
 Leu Ser Asn Asn Trp Glu Leu Trp Ser Leu Ser Ala Pro Ala Ala Asp
 100 105 110
 Ala Val Glu Ile Thr Gly Ala Ser Tyr Val Asp Ser Asp Ala Ser Ala
 10 115 120 125
 Thr Tyr Ala Thr Ser Phe Asp Ile Pro Leu Thr Thr Thr Thr Ser
 130 135 140
 Ser Ser Ser Ala Ser Ala Thr Ser Thr Ser Ser Leu Thr Thr Thr Ser
 15 145 150 155 160
 Ser Val Ser Ile Ser Val Ser Val Pro Thr Gly Thr Ala Ala Asn Trp
 20 165 170 175
 Arg Gly Arg Ala Ile Tyr Glu Ile Val Thr Asp Arg Phe Ala Arg Thr
 180 185 190
 Asp Gly Ser Thr Thr Tyr Leu Cys Asp Val Thr Asp Arg Val Tyr Cys
 25 195 200 205
 Gly Gly Ser Tyr Glu Gly Ile Ile Asn Met Leu Asp Tyr Ile Glu Gly
 210 215 220
 Met Gly Phe Thr Ala Ile Trp Ile Ser Pro Ile Val Glu Asn Ile Pro
 30 225 230 235 240
 Asp Asp Thr Gly Tyr Gly Tyr Ala Tyr His Gly Tyr Trp Met Lys Asp
 35 245 250 255
 Ile Phe Ala Leu Asn Thr Asn Phe Gly Thr Ala Asp Asp Leu Ile Ala

	260	265	270
	Leu Ala Thr Glu Leu His Asn Arg Gly Met Tyr Leu Met Val Asp Ile		
	275	280	285
5	Val Val Asn His Phe Ala Phe Ser Gly Ser His Ala Asp Val Asp Tyr		
	290	295	300
	Ser Glu-Tyr Phe Pro Tyr Ser Ser Glu Asp Tyr Phe His Ser Phe Cys		
10	305	310	315 320
	Trp Ile Thr Asp Tyr Ser Asn Glu Thr Asn Val Glu Gln Cys Trp Leu		
	325	330	335
15	Gly Asp Asp Thr Val Pro Leu Val Asp Val Asn Thr Glu Leu Asp Thr		
	340	345	350
	Val Lys Ser Glu Tyr Gln Ser Trp Val Glu Glu Leu Ile Ala Asn Tyr		
	355	360	365
20	Ser Ile Asp Gly Leu Arg Ile Asp Thr Val Lys His Val Glu Met Asp		
	370	375	380
	Phe-Trp Ala Pro Phe Glu Glu Ala Ala Gly Ile Tyr Ala Val Gly Glu		
25	385	390	395 400
	Val Phe Asp Gly Asp Pro Ser Tyr Thr Cys Pro Tyr Glu Glu Asn Leu		
	405	410	415
30	Asp Gly Val Leu Asn Tyr Pro Val Tyr Tyr Pro Val Val Ser Ala Phe		
	420	425	430
	Glu Ser Val Ser Gly Ser Val Ser Ser Leu Val Asp Met Ile Asp Thr		
	435	440	445
35	Leu Lys Ser Glu Cys Thr Asp Thr Thr Leu Leu Gly Ser Phe Leu Glu		
	450	455	460

Asn Glu Asp Asn Pro Arg Phe Pro Ser Tyr Thr Ser Asp Glu Ser Leu
 465 470 475 480

5 Ile Lys Asn Ala Ile Ala Phe Thr Met Leu Ser Asp Gly Ile Pro Ile
 485 490 495

Ile Tyr Tyr Gly Glu Glu Gln Gly Leu Asn Gly Gly Asn Asp-Pro Tyr
 500 505 510

10 Asn Arg Glu Ala Leu Trp Leu Thr Gly Tyr Ser Thr Thr Ser Thr Phe
 515 520 525

Tyr Lys Tyr Ile Ala Ser Leu Asn Glu Ile Arg Asn Glu Ala Ile Tyr
 15 530 535 540

Lys Asp Asp Thr Tyr Leu Thr Tyr Glu Asn Trp Val Ile Tyr Ser Asp
 545 550 555 560

20 Ser Thr Thr Ile Ala Met Arg Lys Gly Phe Thr Gly Asn Glu Ile Ile
 565 570 575

Thr Val Leu Ser Asn Leu Gly Thr Ser Gly Ser Ser Tyr Thr Leu Thr
 580 585 590

25 Leu Ser Asn Thr Gly Tyr Thr Ala Ser Ser Val Val Tyr Glu Ile Leu
 595 600 605

Thr Cys Thr Ala Val Thr Val Asp Ser Ser Gly Asn Leu Ala Val Pro
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Met Ser Ser Gly Leu Pro Lys Val Phe Tyr Glu Glu Ser Gln Leu Val
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35 Gly Ser Gly Ile Cys Ser Met
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<210> 2
<211> 1946
<212> DNA
5 <213> Artificial Sequence

<220>
<223> E. coli BL21(DE3)pLysS

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15 tctgtgacga gttcgaacca tgttcagcta gccagtcac agatgtgcga cagtaccttg 180
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10	gttcaagaac ttatagctaa ttactctatt gacggcctaa gaattgacac cgtcaagcac	1140
	gtgcagatgg atttttgggc accatttcaa gaggtgcag ggatttacgc cgttggtgaa	1200
15	gtattcgacg gtgatccatc ctacacatgt ccataacagg aaaatcttga cgggtctttg	1260
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	caggctatat acaaagatga tacttatctc acatatcaga actgggttat ttattcggat	1680
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35	tctagcgttg tatatgagat cttgacatgc acagctgtga ctgtggattc gtctgggaat	1860
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5 <210> 3
<211> 27
<212> DNA
<213> Artificial Sequence

10 <220>
<223> L. starkeyi primer 1(sense)

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<210> 4
<211> 21
20 <212> DNA
<213> Artificial Sequence

<220>
<223> L. starkeyi primer 2(antisense)
25

<400> 4
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21

30